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CLAIMS

1. A pump system for providing a pressurized liquid comprising
 - a. an elevated supply reservoir of a liquid at a first pressure;
 - b. at least one pair of vertically reciprocating liquid transfer vessels, each of
10 said transfer vessels having
 - i) a force transfer assembly operatively associated with it that
transfers downward force into upward force; and
 - ii) a liquid pump operatively associated with said force transfer
assembly for delivering liquid at a second pressure that is greater than said
15 first pressure; and
 - c. A storage reservoir below said supply reservoir for receiving liquid from
said supply reservoir and delivering said liquid to each of said liquid pumps,
said supply reservoir being adapted to supply said liquid to said transfer vessels
under gravity flow, and
20 said liquid applied to said transfer vessels providing said downward force.
2. A pump system as recited in claim 1 wherein
 - a. said at least one pair of transfer vessels
 - b. each of said liquid pumps
 - c. each of said force assemblies and
 - 25 d. storage reservoirare disposed within a sealed container.
3. A pump system as recited in claim 2 wherein

- 5 said elevated supply reservoir is also disposed within said sealed container.
4. A pump system as recited in claim 1 wherein said first pressure is atmospheric pressure.
5. A pump system as recited in claim 1 wherein
 said pair of transfer vessels is adapted to alternately rise and lower.
- 10 6. A pump system as recited in claim 1 wherein said pump system further comprises
 a transfer vessel elevation assembly for alternately raising one of said pair of
 transfer vessels while the other of said pair of transfer vessels descends.
7. A pump system as recited in claim 1 wherein
 said liquid pump comprises a vertical stroke, single-action pump.
- 15 8. A pump system as recited in claim 1 wherein
 an upward vertical stroke of said pump delivers said liquid at a second pressure
 that is greater than said first pressure.
9. A pump system as recited in claim 1 wherein
 said supply reservoir comprises a plurality of dispensing valves in liquid
20 communication with said supply reservoir and controlling outflow of said liquid
 from said supply reservoir.
10. A pump system as recited in claim 10 wherein
 said dispensing valves correspond in number to the number of said transfer
 vessels.
- 25 11. A pump system as recited in claim 1 wherein

- 5 each of said transfer vessels comprises at least one exhaust valve in liquid
communication with the interior of said transfer vessel and controlling outflow of
said liquid from said vessel.
12. A pump system as recited in claim 11 wherein
a plurality of said exhaust valves associated with each of said transfer vessels.
- 10 13. A method of providing a liquid at elevated pressure comprising
- a. providing a supply of a liquid at a first pressure
- b. directing at least a portion of said liquid to flow by gravity into a vertically
 reciprocating vessel to create a downward force on said vessel,
- c. transferring said downward force into an upward force,
- 15 15 d. operatively applying said upward force to a pump to
 drive said pump to deliver said liquid at a second pressure.
14. A method as recited in claim 13 wherein
said liquid is alternately exhausted from said vessel and refilled to provide an
alternating downward force.
- 20 15. A method as recited in claim 13 wherein
a plurality of reciprocating vessels are used.
16. A method as recited in claim 15 wherein
said liquid is alternately exhausted from each of said vessels and refilled to each
of said vessels to provide a plurality of alternating downward forces.